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**BRIEFING FOR FCC PCS TASK FORCE**FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY**MSS GLOBAL SPECTRUM ISSUES****APRIL 14, 1994**

by

**MSS INDUSTRY SPECTRUM COALITION:****AMSC****CELSAT****COMSAT****IRIDIUM, INC./MOTOROLA****LORAL/QUALCOMM****TRW**

## **MOBILE SATELLITE SERVICE (MSS) OVERVIEW OF THE PROBLEM**

- **Spectrum Needs for MSS Well Documented Prior to WARC-92:**
  - **FCC Industry Advisory Committee**
  - **International Working Party (CCIR)**
- **USA Strongly Advocated MSS Allocations at WARC-92; Agreement Reached After Difficult Negotiations:**
  - **Limited L-Band 5 MHz Expansion**
  - **Big LEOs Provide MSS in Old RDSS Bands**
  - **2 GHz MSS Bands (future availability)**
  - **Other MSS Allocations Unusable in the USA**
- **Events Following WARC-92:**
  - **Big LEO FCC Proceeding**
  - **L-Band Spectrum Congestion**
  - **FCC Emerging Technology Proceeding**
  - **USA Promotes Early Use of WARC-92 2 GHz MSS Bands at WRC-93**

## **MOBILE SATELLITE SERVICE (MSS) OVERVIEW OF THE PROBLEM (continued)**

- **FCC PCS Order Nullifies the International Agreement on Global MSS Allocations:**
  - **Eliminates Two-thirds of the MSS Global Allocations at 2 GHz**
  - **Major Impact on U.S. MSS and Aerospace Industries**
  - **Major Consequences on Future U.S. Negotiations within the ITU Community**
  - **Increases Pressure on L-Band MSS Coordination - Nowhere to Run!**
- **No Substitute Bands for the WARC-92 Global 2 GHz MSS Bands:**
  - **Worldwide Agreement on Any New Bands is Difficult and Time Consuming**
  - **WRC-97 First Real Opportunity to Consider New MSS Bands**
- **Potential Solution May Be A Win-Win Result For MSS and Terrestrial PCS**

## **ECONOMIC IMPORTANCE OF MSS INDUSTRY**

- **Spectrum is Vital to the Expanding U.S. Mobile Satellite Industry:**
  - **INMARSAT: 73 Countries; Global System Expanding; Immediate Plans for 2 GHz MSS Bands; filed with IFRB March 3, 1992, Requested Coordination, 1993.**
  - **AMSC: First Launch 4th Quarter 1994; Application for Satellite PCS Services at 2 GHz, filed April 7, 1994**
  - **CELSAT: Application for Satellite PCS Services at 2 GHz, filed April 8, 1994**
  - **IRIDIUM: First-round Equity Financing of \$1.0B Committed 14 Partners in 11 Countries; 66 Satellite System Under Development; use Big LEO Bands Initially**
  - **GLOBALSTAR: Financing of \$275M Announced with 10 Partners in 5 Countries; LORAL Developing Spacecraft; Use Big LEO Bands Initially**
  - **ODYSSEY: TRW Seeking Financial Partners for 12 Satellite MEO System; Use Big LEO Bands Initially; Has Filed for Rulemaking to Allocate 2 GHz Bands Domestically to MSS**

## **MSS PROMOTES US INTEREST IN THE GLOBAL MARKETPLACE**

- **Promotes US High-Tech Jobs in Research and Development, Manufacturing And Operational Services**
  - **Project-21 (26,000 Jobs Estimated by A. D. Little & Co.)**
  - **IRIDIUM (over 50,000 Jobs Estimated by IRIDIUM, Inc.)**
  - **Total US Systems Costs Could Exceed \$10B Initially**
- **Promotes US Competitiveness in the Global Marketplace**
  - **US Technology Leadership**
  - **Favorable Balance of Payments**
  - **Stimulates Economic Development and Demand for US Products**
- **Promotes NII and GII with Universal Service**
  - **VP Gore and Chairman Hundt Message to the Buenos Aires Conference on Telecom Development**
  - **Brings Modern-Day PCS Services to Rural America and Remote areas Worldwide**

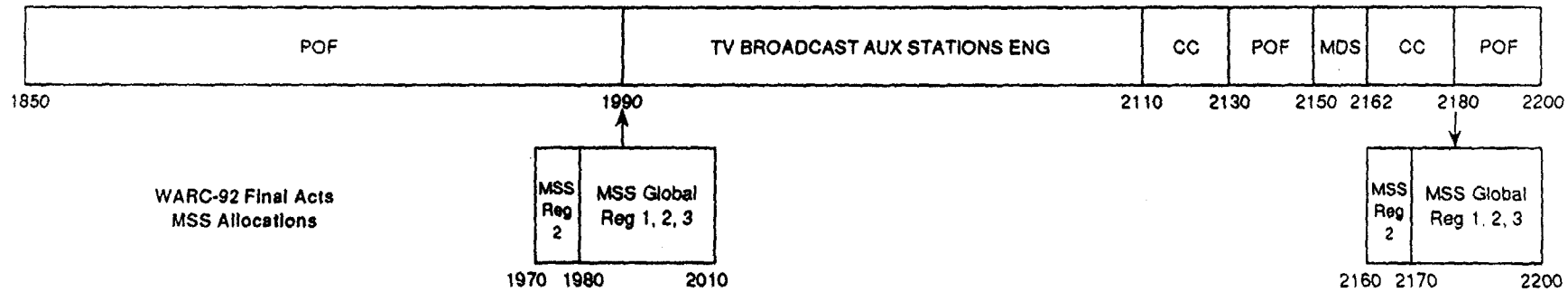
## **POTENTIAL SOLUTION - ALTERNATIVE FREQUENCY PLAN FOR PCS**

- **Main Features of New PCS Solution:**
  - **Provides Same Total Bandwidth for PCS --120 MHz-- As in Commission's PCS Order; Retains 120 MHz for Spectrum Auctions**
  - **Requires "SWAP-OUT" of U-PCS (40 MHz) to Band Above 2 GHz**
  - **Avoids 20 MHz Overlap of PCS with MSS Downlinks in 2180-2200 MHz**
  - **New Location for "D/E/F/G" Licensed-PCS Sub-Bands**
  - **Combines All 120 MHz of Licensed-PCS in Single Block Below 2 GHz**
- **Possible Arguments Against Potential PCS Solution**
  - **Unlicensed PCS Must Contend with a Larger Number of Fixed Microwave Assignments in the 2.1 GHz Band**  
**True, but Sharing At a Given Locality Will Be Easier with Narrow band Carriers Found at 2.1 GHz as Compared to 1.9 GHz**  
**(Listen Before Transmit Spectrum Etiquette Applies)**
  - **Solution Uses E.T. Reserve (2110-2130 MHz)**  
**Yes, but PCS and MSS are the Emerging Technologies and Merit Full Support. Fixed Services in This Part of the Spectrum Were Identified by FCC in E.T. Docket for Relocation to Higher Bands**

<p><b>POTENTIAL SOLUTION - ALTERNATIVE FREQUENCY PLAN FOR PCS (cont'd)</b></p>
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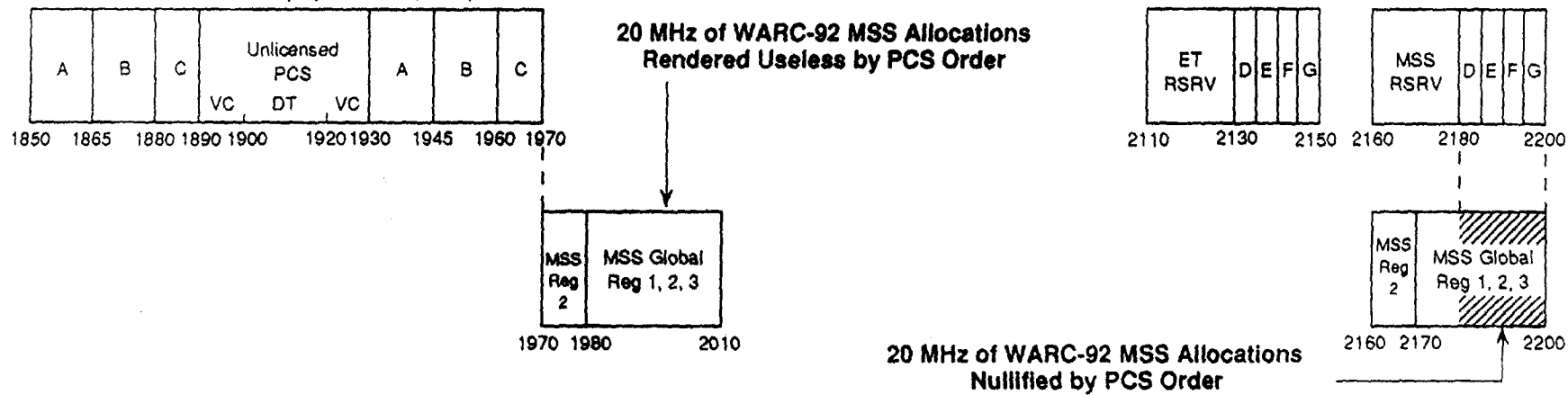
- **Benefits of Potential Solution:**
  - **Places All Licensed-PCS Below 2 GHz, Where Equipment Manufacturers Have Existing Products**
  - **Allows FCC Flexibility to Adjust Spectrum for New PCS Entrants, Existing Cellular Carriers and Designated Entities**
  - **Provides Uniform 60 MHz Channel Separation**
  - **Location of Unlicensed PCS at 2.1 GHz is Closer to Existing Part 15.247 Digital Unlicensed Operations (2.4 GHz)**
  - **Allows for the Survival of the MSS Industry**

# Existing U.S. Table of Allocations at 2 GHz Prior to WARC-92



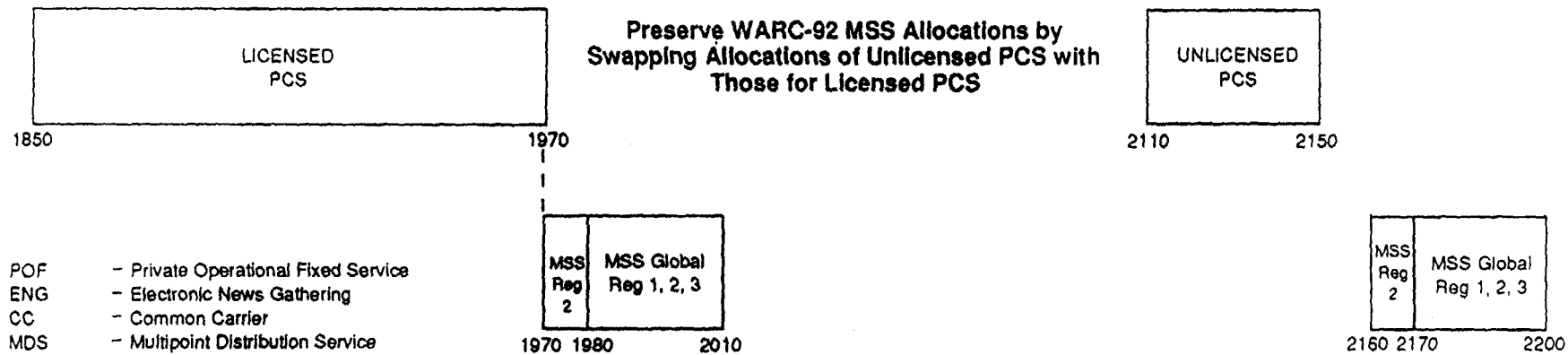
## FCC PCS Order (September 23, 1993)

MAJOR IMPACT ON MSS



## IMPROVED FCC PCS Order

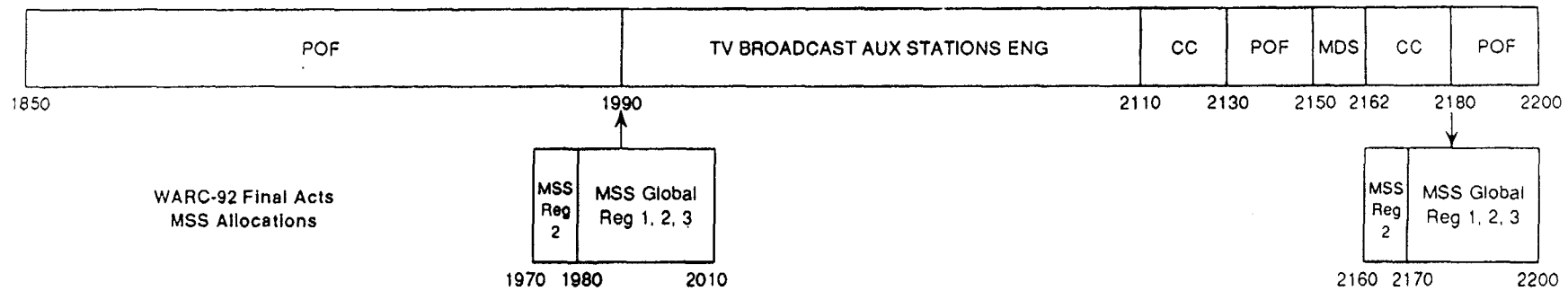
NO IMPACT ON MSS



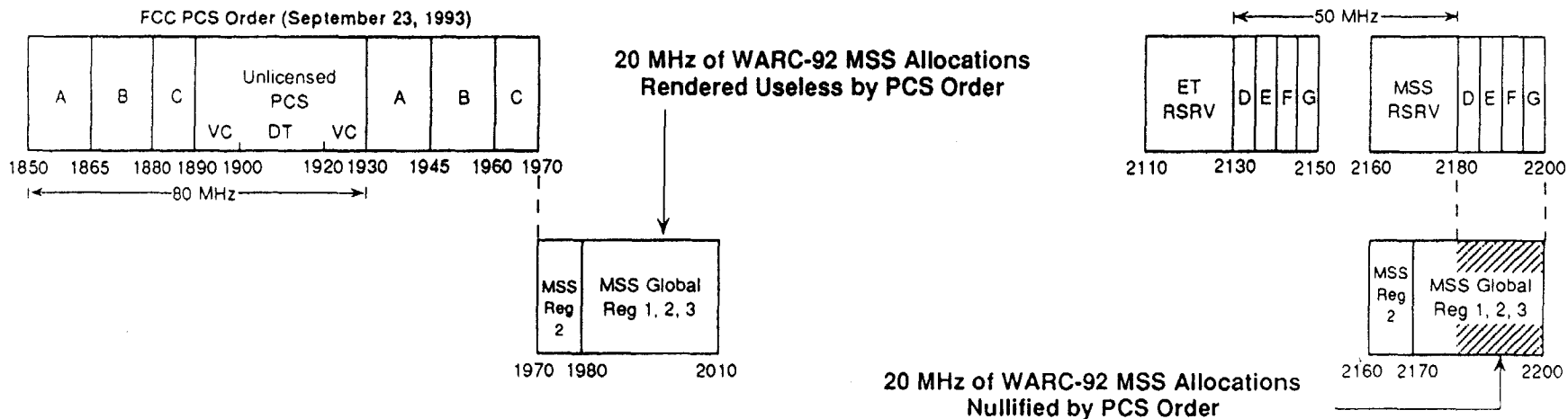
- POF - Private Operational Fixed Service
- ENG - Electronic News Gathering
- CC - Common Carrier
- MDS - Multipoint Distribution Service
- VC - Unlicensed PCS Voice
- DT - Unlicensed PCS Data
- ET RSRV - Emerging Technology Reserve / Use Undesignated
- MSS RSRV - MSS Reserve



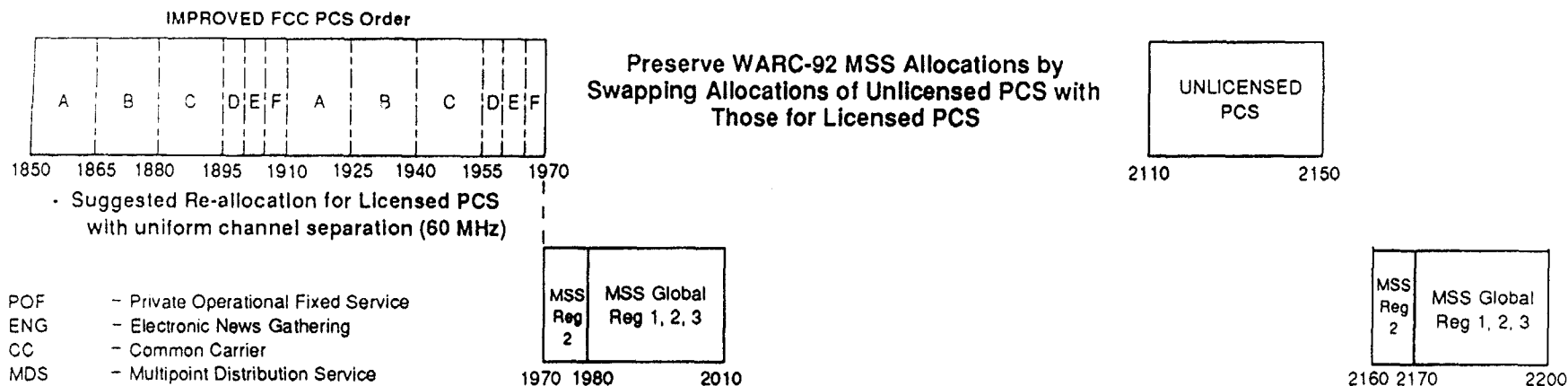
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MAJOR IMPACT ON MSS

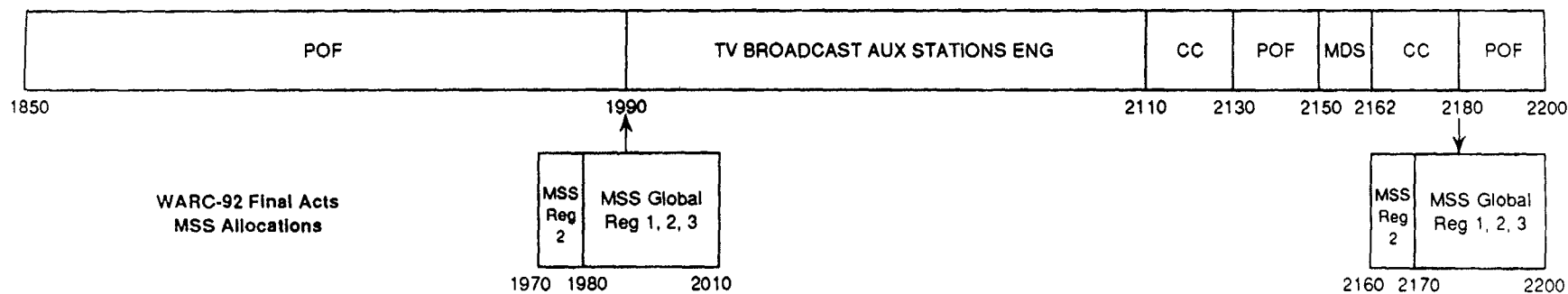


NO IMPACT ON MSS

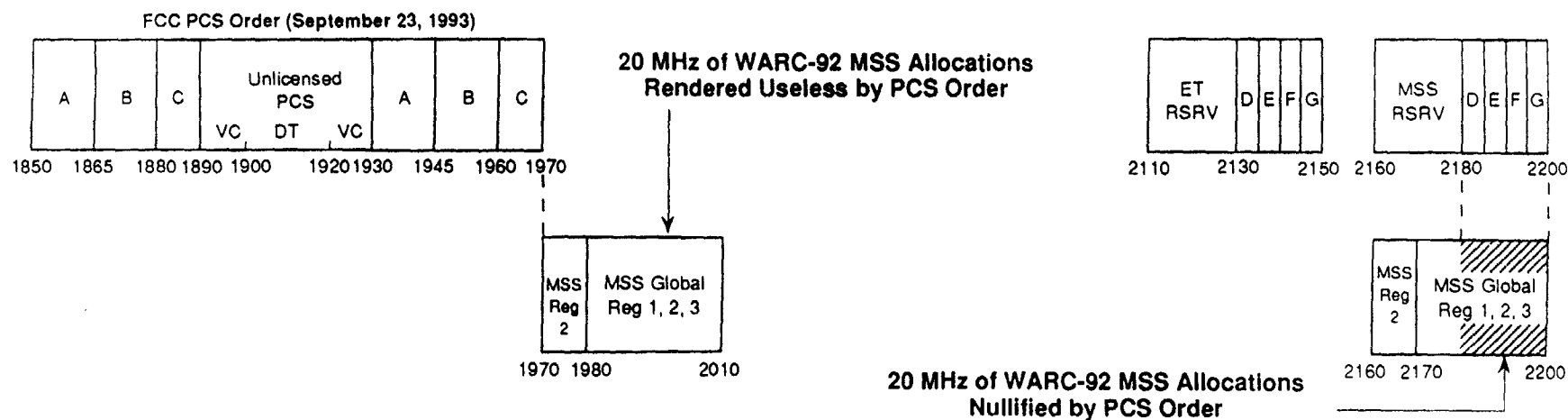


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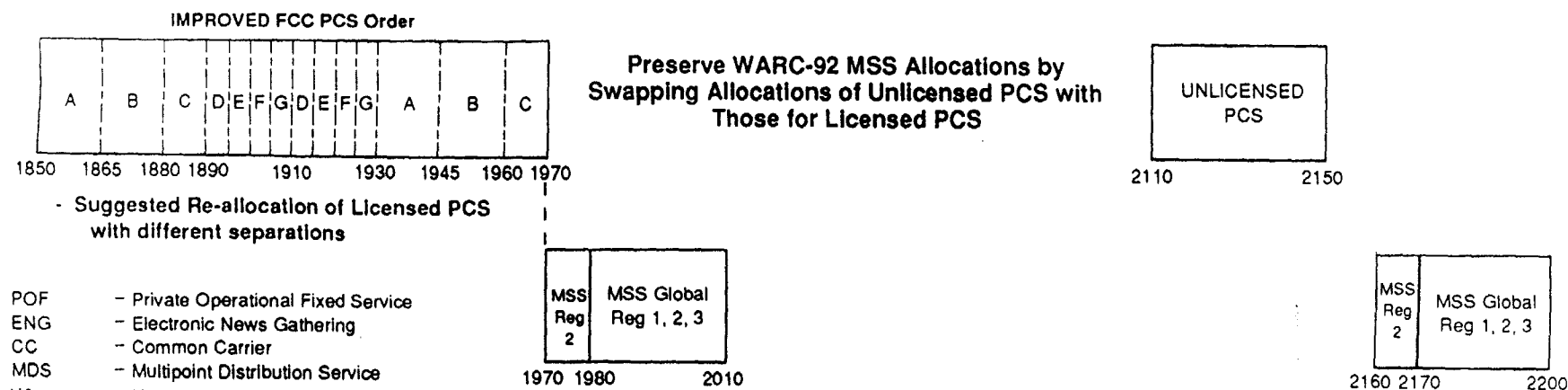
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MAJOR IMPACT ON MSS



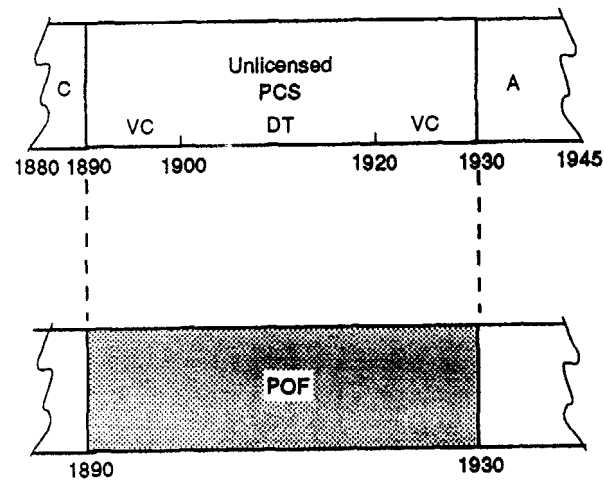
NO IMPACT ON MSS



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## Fixed Microwave Environment for U-PCS Below and Above 2 GHz

FCC PCS Order (September 23, 1993)

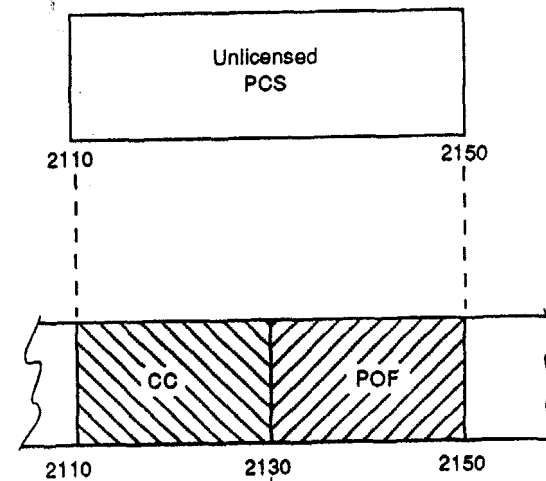


**1830 Assignments\***

- 35 % ELECTRICAL UTILITIES
- 26 % PETROLEUM
- 22 % LOCAL GOVERNMENT & PUBLIC SAFETY
- 10 % RAILROADS
- 7 % OTHERS

5 / 10 MHz Channels

MSS Possible Solution



**3126 Assignments\***

- CELLULAR
- LOCAL EXCHANGE CARRIER

3.2 / 3.6 MHz Channels

**6716 Assignments\***

- 31 % LOCAL GOVERNMENT & PUBLIC SAFETY
- 27 % UTILITIES
- 22 % PETROLEUM
- 12 % OTHERS
- 8 % RAILROADS

.8 / 1.6 MHz Channels

\* NTIA, "A Preliminary Look at Spectrum Requirements for Fixed Services", May 1993

## **CONCLUSIONS**

- **The FCC Should Restore -- and Implement -- the Full WARC-92 Global MSS Allocations at 2 GHz**
- **The FCC Has The Responsibility and the Expertise to Find an Appropriate Reassignment for PCS**
- **The Spectrum Identified in the Emerging Technologies Docket Should Be Adequate for Both PCS and MSS**
- **Without Corrective Action, the U.S. MSS Industry Will Be Seriously Damaged... Perhaps Irrevocably**